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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/859,701	05/16/2001	Benjamin P. Warner	S-94,661	4132
35068	7590	04/25/2005	EXAMINER	
UNIVERSITY OF CALIFORNIA LOS ALAMOS NATIONAL LABORATORY P.O. BOX 1663, MS A187 LOS ALAMOS, NM 87545			DAVIS, DEBORAH A	
			ART UNIT	PAPER NUMBER
			1641	

DATE MAILED: 04/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/859,701

Applicant(s)

WARNER ET AL.

Examiner

Deborah A. Davis

Art Unit

1641

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 January 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Art Unit: 1641

DETAILED ACTION

1. In view of the appeal brief filed on January 27, 2005, PROSECUTION IS HEREBY REOPENED. A new Office Action on the merits are set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) request reinstatement of the appeal.

If reinstatement of the appeal is requested, such request must be accompanied by a supplemental appeal brief, but no new amendments, affidavits (37 CFR 1.130, 1.131 or 1.132) or other evidence are permitted. See 37 CFR 1.193(b)(2).

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-8 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pirrung et al (WO 90/15070) in view of Boris Yokhin (USP#6,041,095).

Art Unit: 1641

Pirrung et al teaches a method and device for preparing desired sequences on a substrate at known locations wherein bound material of the substrate is exposed to irradiation (pg. 10, lines 1-35) so as to activate material and permit binding (see abstract). The substrate has a variety of uses such as screening large numbers of peptides or receptors, wherein receptors are labeled with fluorescent markers for detection. Other applications of the invention include doping of organic material in the substrate (pg. 5, lines 14-36). In an alternative embodiment the surface may comprise of cage binding members that are capable of immobilizing receptors in predefined regions of a substrate for selective activation that allow receptors that have differential affinity for one or more ligands to react (pg. 55, lines 30-37 and pg. 56, lines 1-11). A specific binding substance having a strong binding affinity for the binding member and a strong affinity for the receptor or a conjugate of the receptor may be used to act as a bridge between binding members and receptors if desired. The method uses a receptor prepared such that the receptor retains its activity toward a particular ligand (pg. 56 lines 30-36). According to Pirrung et al, receptors used in this method could be organic compounds such as polymers (oligomer), nucleic acids, peptides, drugs, cellular membranes, cells, etc. (pg. 11, lines 7-24). The binder molecule can be selected from the group consisting of agonists and antagonists for cell membrane receptors, oligonucleotides, nucleic acids, proteins, antibodies, etc. (pg. 9, lines 30-37).

The method of Pirrung et al is silent with respect to X-ray fluorescence for analysis. However, the reference of Boris Yokhin teaches an apparatus for X-ray

Art Unit: 1641

excitation of a sample and discloses in the background of the invention that this procedure is well known in the art for determining the elemental composition of a sample and that X-ray fluorescence is analyzed to find the energies or the wavelengths of the detected photons for qualitative and/or quantitative analysis (column 1, lines 9-20).

Accordingly, it would have been obvious to one of ordinary skill in the art to select or include x-ray fluorescence as taught by Yokhin in the variety of detection methods used by Pirrung et al to find the energies or the wavelength of the detected photons for qualitative and/or quantitative analysis (column 1, lines 9-20). One would be motivated to include x-ray fluorescence in the reference of Pirrung et al in view of the closely related methodology and sensitivity in the detection of binding events and expectation of success.

4. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pirrung et al in view of Boris Yokhin and in further view of Weinberg et al (USP#6,030,917).

The teachings of Pirrung et al in view of Boris Yokhin are set forth and is silent with respect to the binder being a metal ion.

However, Weinberg et al teaches methods of screening and characterization of libraries of organonometallic compounds which can be used as catalysts and therapeutic agents (see abstract). Ancillary ligand-stabilized

Art Unit: 1641

metal complexes are also useful as catalysts for reactions such as oxidation, reduction, hydrogenation, polymerization, carbonylation and other reactions.

It would have been obvious to one of ordinary skill in the art to use the metal ion binder of Weinberg et al in the method and device for preparing desired sequences on a substrate as taught by Pirrung et al in view of Yokhin to screen for therapeutic agents and catalysts that are useful in oxidation, reduction and other useful reactions.

Response to Arguments

5. Applicant argument that the reference of Pirrung et al does not anticipate the instant invention because x-ray fluorescence is not taught. This argument is noted, but the reference of Pirrung et al teaches x-ray and fluorescence detection. But in an effort to move prosecution, the examiner has modified the reference of Pirrung et al to include the teaching of x-ray fluorescence taught by Yokin. Therefore, this argument is moot in view of the new obviousness rejection above.

7. Applicant's argument that the use of fluorescent tags and other markers uses in the reference of Pirrung et al can affect or alter the binding properties of receptor and binding may not be realized; therefore applicant contends that the instant invention does not use such markers.

In response, the limitation excluding the use of detection markers are not in the claims. Further, the instant claims have open comprising language and

Art Unit: 1641

therefore does not exclude or include the use of detection markers. The reference of Pirrung et al teach detection of binding events between antibodies and receptors, therefore, it is the position of the examiner that the reference of Pirrung et al is obvious over the instant claimed invention.

8. Applicant argument that there is no motivation or suggestion in either the reference of Pirrung et al or Weinberg et al for exposing the substrate array of Pirrung et al to binders before the array is exposed to x-ray radiation and the reference of Weinberg et al does not describe modifying the teachings of Pirrung et al with regard to detecting binding using an x-ray fluorescence signal.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Further, the examiner relied on the Weinberg reference for its teaching of metal ions which has several applications and, are well known in the art. The motivation for combining the references are provided above.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Deborah A. Davis whose telephone number is

Art Unit: 1641

(571) 272-0818. The examiner can normally be reached on 8-5 Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Long Le can be reached on (571) 272-0823. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Deborah A. Davis
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April 15, 2005



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04/19/05